INSTALLATION OF INSTANTANEOUS VOLTAGE-DROP PROTECTOR - FREEDOM FROM UPS MAINTENANCE

Y.Ishizawa[*]*, T.Matushita, T.Fukui, T.Ohata and R.Tanaka,*
SPring-8, Hyogo 679-5198, Japan

Abstract

We have installed momentary line-drop protectors (MLP) to the SPring-8 beam line control system removing UPS power supplies. The MLP is a capacitor charging power supply, and is designed to work for 15 years without maintenance.

The SPring-8 storage ring and beam line have to provide high brilliant X-ray beams to synchrotron radiation experiment users with keeping high stability and reliability. Many UPS units were installed to the control system in order to protect power failure occurred about 20 times a year by lightning and snow. The UPS was expected to protect the key equipment such as PLC and VME systems from power failure. The number of UPS increased to about 200, which caused the heavier maintenance work such as battery replacement and fan check. In addition, troubles with intelligent UPS sometimes stopped electric power output due to defective operation of the UPS self-diagnostic function, and caused the stored beam abort several times in a year. Then, we started to find more reliable power supply unit, by investigating the characteristics of power outage robustness of the devices, and power failure frequency in SPring-8. We sorted out the recorded real data of all instantaneous voltage drop. We also examined power failure characteristics of devices (PLC, VME, hub, PC, etc.) systematically by using an instantaneous voltage-drop simulator. We found that UPS protection was over-specification to the most of the devices, and new simple power supply unit MLP is suitable to fit our requirement. We report the new power supply MLP, the study of power outage characteristics, and the MLP unit installation to the SPring-8 beam lines.